



Preconception Health: A Life-Course Perspective and a Real Life Application



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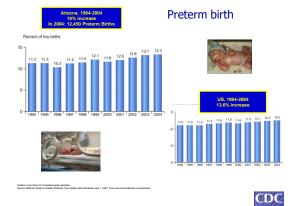
Preconception Care: Rationale

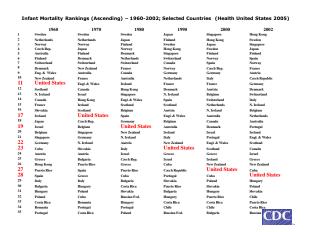
- No / little improvement in low birthweight / preterm delivery (some worsening) despite improved access to prenatal care
- Perinatal periods of risk approach (PPOR) suggests that main area of improvement is maternal health
 - Not infant health, pregnancy care
- Most predictive risk factor for preterm birth / low birthweight prior PTD, LBW
 - Focus is on secondary prevention



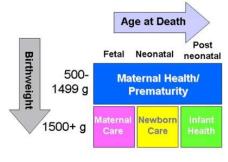
Preconception Care: Rationale

- Unintended pregnancy 50% rate in the USA
 - About half of these women are using birth control in the month of conception
- We intervene too late
 - Critical periods of early fetal development occur before pregnancy is recognized
 - More emphasis on early fetal development as a risk factor of adult onset disease
 - Fetal / developmental origins hypothesis

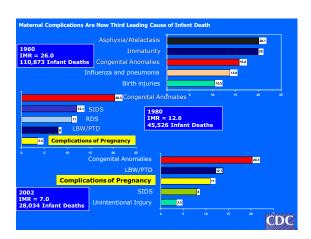


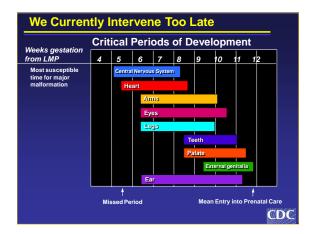


Perinatal Periods of Risk

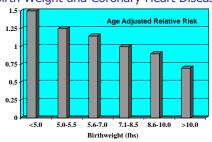


CDC

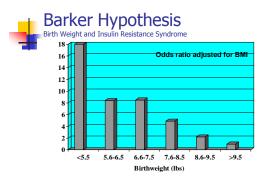




Barker HypothesisBirth Weight and Coronary Heart Disease



Rich-Edwards JW, Stampfer MJ, Manson JE, Rosner B, Hankinson SE, Colditz GA et al. Birth weight and risk of cardiovascular disease in a cohort of women followed up since 1976. Br Med Jr 1997;315:396-400.



Barker DJP, Hales CN, Fall CHD, Osmond C, Phipps K, Clark PMS. Type 2 (non-insulin-dependent) diabetes mellitus, hypertension and hyperlipidaemia (Syndrome X): Relation to reduced fetal growth. Diabetologia 1993;36:62-67.

Paradigm	Shift

From

Anticipation and Management

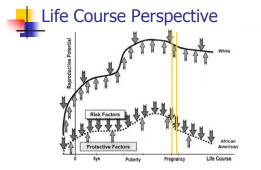
Health Promotion and Prevention

From

Healthy Mothers Healthy Babies

Healthy Women Healthy Mothers Healthy Babies





Lu MC, Halfon N. Racial and ethnic disparities in birth outcomes: a life-course perspective. Matern Child Health J. 2003;7:13-30.





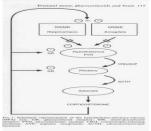
Prenatal Stress & Programming of the Brain

- Prenatal stress (animal model)
 - Hippocampus
 - Site of learning & memory formation
 - Stress down-regulates glucocorticoid receptors
 - Loss of negative feedback; overactive HPA axis
 - Amygdala
 - Site of anxiety and fear
 - Stress up-regulates glucocorticoid receptors
 - Accentuated positive feedback; overactive HPA axis

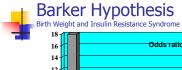
Welberg LAM, Seckl JR. Prenatal stress, glucocorticoids and the programming of the brain. J Neuroendocrinol 2001;13:113-28.

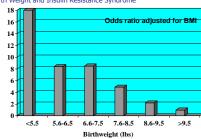
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Prenatal Programming of the Hypothalamic-Pituitary-Adrenal Axis

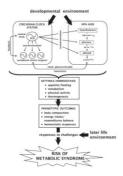


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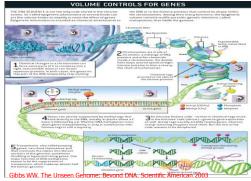


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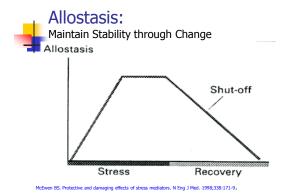


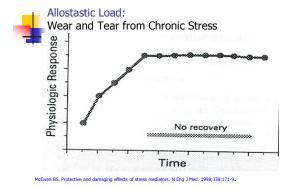
Developmental origins of the metabolic syndrome: Body clocks and stress responses Felino R. Cagampang, Kirsten R. Poore, Mark A. Hanson Brain, Behavior, and Immunity 2011;25:214

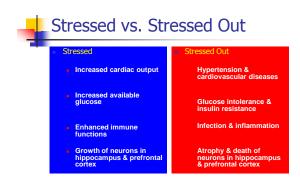
Epigenetics

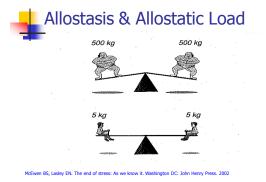








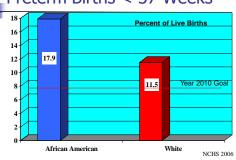


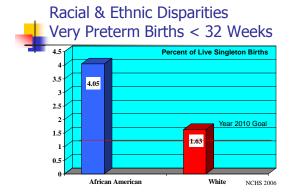


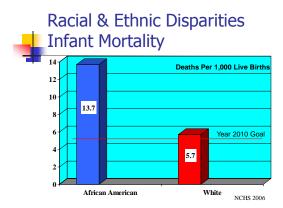
Rethinking Preterm Birth



Racial & Ethnic Disparities Preterm Births < 37 Weeks







Rethinking Preterm Birth Vulnerability to preterm delivery may be traced to not only exposure to stress & infection during pregnancy, but host response to stress & infection (e.g. stress reactivity & inflammatory dysregulation) patterned over the life course (early programming & cumulative allostatic load)



Childhood conditions and persistent bacterial vaginosis

- Cammack et al* found:
 - Associations of childhood sexual assault, and lack of parental home ownership to be associated with bacterial vaginosis
 - No effect of education after controlling for the
- BV has a 2x increased risk of preterm birth and even higher risk for early preterm birth.

Am J Obstet Gynecol 2011:204:431

Preterm Birth & Maternal Ischemic Heart Disease 0.998 0.996 E 0-994

121813 7295 Kaplan-Meier plots of cumulative probability of survival without admission or d from ischemic heart disease after first pregnancy in relation to preterm birth

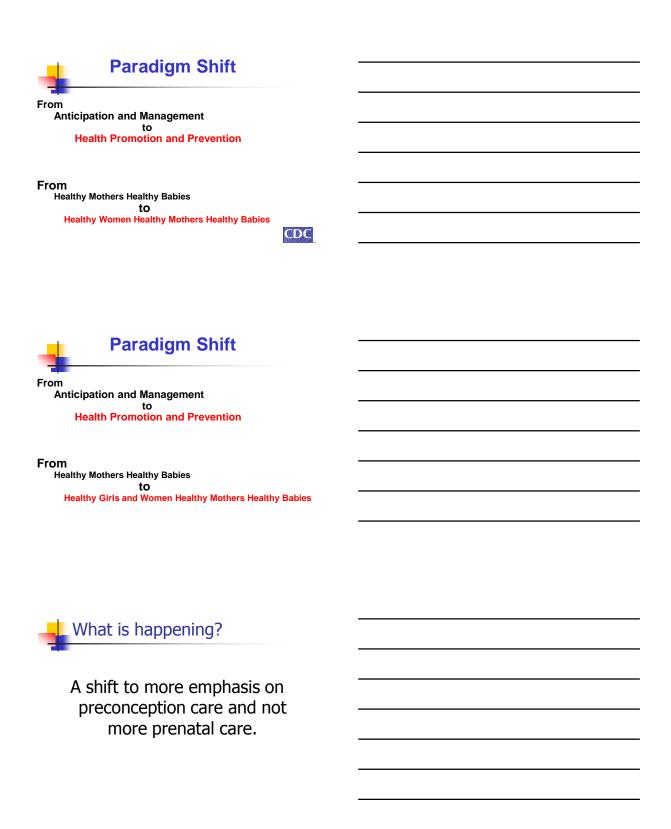
first delivery (years)

97169 5727

121518 7262

Life Course Perspective

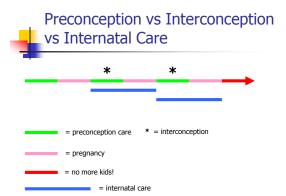
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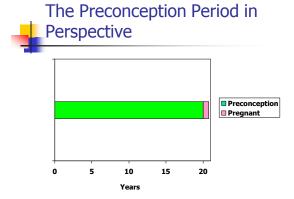




What is a definition of preconception care?

"... comprised of interventions that aim to identify and modify biomedical, behavioral, and social risks to a woman's health or pregnancy outcome through prevention and management, emphasizing those factors which must be acted on before conception or early in pregnancy to have maximal impact. Thus, it is more than a single visit and less than all well-woman care. It includes care before a first pregnancy or between pregnancies (commonly known as interconception care)" - CDC 2006







Not a New Concept

 Foolish, drunken, or harebrain women most often bring forth children like unto themselves



 Behold, thou shalt conceive and bear a son: And now, drink no wine or strong drink.
 Judges 13:7



Aristotle 384-322 BC





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Key Components of Preconception Care

- 1. Reproductive life plan
- 2. Past reproductive history
- 3. Medical assessment
- 4. Medication use
- 5. Infections & immunizations
- 6. Genetic risks
- 7. Healthy weight & nutrition
- 8. Psychosocial & behavioral risks
- 9. Healthy environment
- 10. Physical assessment



CDC efforts in this area

- One is a "clinical workgroup"
- Has cataloged preconception / interconception interventions based on strength of evidence.



Am J Obstet Gynecol Dec 2008



What are some the "A" recommendations?

- Family Planning / Repro Life Plan
- Attention to Weight Status – High / Low
- Folate**I-a
- Immunizations
 - Hep B
 - MMR

- Infections
 - HIV **I-b
 - Chlamydia Screening **
- Diabetes **I-a
- Thyroid Disease
- PKU
- Seizure
- HTN
- Rheumatoid

** RCT data



What are some the "A" recommendations?

- Tobacco **I-a
- Avoid High Vit A
- Vit D
- Calcium
- Eating disorders
- Attention to household exposures
- Attention to Meds
 - Prescription
 - OTC
- SupplementsPrior PTB **I-a
- Prior CS
- Prior Miscarriage **I-a
- Those with prior cancer

** RCT data



Reproductive Life Plan

- A set of personal goals about having (or not having) children based on personal values and resources
- A plan to achieve those goals

http://www.cdc.gov/ncbddd/preconception/QandA.htm#5



Examples of a Reproductive Life Plan

- 1. Do you hope to have any (more) children?
- 2. How many children do you hope to have?
- 3. How long do you plan to wait until you (next) become pregnant?
- 4. How much space do you plan to have between your pregnancies?
- 5. What do you plan to do until you are ready to become pregnant?
- 6. What can I do today to help you achieve your plan?



Opportunities to promote preconception health

- Ask about reproductive life plan at every visit
- Every woman, every time



Real Life Application



Internatal Clinic at MIHS



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Goals of Internatal Care

- Identify risks
- Manage risks / diseases that pose a risk to the future pregnancy
- Extend the interval between pregnancies through family planning
- Provide continuity of care from the internatal to the prenatal period

Program Eligibility

- Index pregnancy
 - Preterm birth 35 weeks or less
 - Early pregnancy loss 15 weeks and more
 - Stillbirth
 - Low birthweight
 - Prolonged NICU stay
 - Initially 3 days now 5 days
- Not permanently sterilized

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Schedule of Visits

- 2 weeks
 - Breastfeeding, review family planning
- 6 weeks
 - Standard postpartum visit
- 6 months
- 12 months
- Yearly thereafter
- Preconception visit



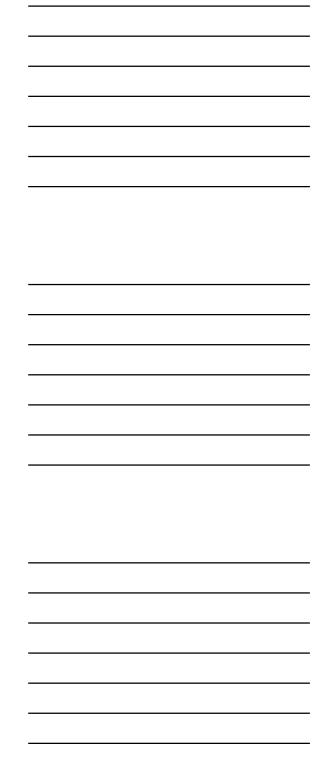
Content of Internatal Care

- For all women:
 - Risk Assessment
 - Family violence, infection / immunization, nutrition, depression, stress
 - Health Promotion
 - Breastfeeding, back to sleep, exercise, exposures, family planning, folate
 - Psychosocial Interventions
 - Clinical Care
 - Coordination of Care



Other Components

- Psychosocial interventions
 - Post postpartum support group
 - Access to social work services
- Clinical interventions
 - Height, weight, BP, Pap etc
 - Walking program
- Coordination of care
 - Mental health
 - Oral health
 - Case management



4

Common Health Issues

- "Enhanced" internatal care for:
 - Hypertension
 - Diabetes
 - Pregestational and gestational
 - Obesity
 - Depression / bereavement
 - Substance use
 - Preterm birth



Our Project Patients: End of 2010

- 696 approached
- 142 had a visit
 - 90% Latina
 - 71 seen for clinical services in the last 6 months and are considered active
- 71 have relocated or have been lost to follow up



Pregnancies

- 20 women have been pregnant
 - 22 pregnancies (2 early SAB then subsequent pregnancy)

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- Their index pregnancies
 - 2nd trimester loss
 - Preterm 10
 - 6 Liveborn
 - 4 IUFD
 - Term IUFD

Pregnancies

- 2 with ongoing pregnancies
- 20 total pregnancies with outcomes
 - SAB in 5 (25%)
 - 4 first trimester, 1 second trimester (20 weeks)
 - Preterm birth in 3 (15%)
 - 26, 35 and 36 weeks
 - Term in 12 (60%)
 - Of pregnancies normally in birth certificates 16
 - Preterm 4 (25%)
 - Term 12 (75%)
 - All liveborn. All went home with mom but 2.



Final Results (n=102 women)

 In program for 12 to 18 months 	64%
 Of those pregnant at least 12 month interval 	40%
 Of those pregnant with first trimester care 	87%
 Of those pregnant, tob, ETOH, drug free 	100%
 Using contraception (if indicated) 	88%
On folate	61%
 Regular exercise (30 min 5 days a week) 	23%
Normal BMI	26%
 Those with oral health needs who have treatment 	20%
 Those with mental health needs who have treatment 	100%

Follow Up Data

	Baseline	6-month	12-month
Health is Excellent	46%	55%	70%
Regular Exercise	23%	76%	70%
Very Interested in Getting Preconception Information	53%	76%	69%
Alcohol Can Effect Fetus	73%	83%	94%
Watchful About Eating Fish	48%	77%	88%



Randomized Trials Needed





Healthy Girls and Women Healthy Mothers Healthy Babies





Questions?

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Good Web Sites

- 1. <u>Preconception General Information</u>
 - http://www.marchofdimes.com/pnhec/173.asp
- 2. <u>FAQ about Preconception Health</u>
 - http://www.cdc.gov/ncbddd/preconception/QandA.htm
- 3. A checklist to take to your doctor if planning a pregnancy: <u>Checklist for</u> <u>Preconception Care</u>
 - http://perinatalweb.org/images/stories/PDFs/Materials%20a nd%20Publication/becoming%20a%20parent_preconception _checklist.pdf



Good Web Sites

- 4. Folic Acid Information
 - http://www.cdc.gov/ncbddd/folicacid/
- 5. Algorithms for post partum care by ACOG District IX and the Interconception Care Project of California.
 - http://www.everywomancalifornia.org/content_display.cfm?contentID=221&categoriesID=18&CFID=89142&CFTOKEN=67700601



Arizona Resources

6. http://www.azdhs.gov/phs/owch/publicat.htm



- English and Spanish pdfs
- Topics
 - Every Woman Arizona
 - Preconception health
 - Healthy mind and heart
 - Medications
 - Diabetes
 - Hypertension
 - Healthy behaviors
 - Smoking
 - Nutrition and exercise
 - High risk pregnancy



Arizona Resources

LiveItChangeIt.com

7. http://www.azdhs.gov/liveitchangeit/index.htm



Thanks to our partners and funders:

- March of Dimes
- Maricopa Dept of Public Health'
- ADHS
 - BHS
- Mercy Care Plan
- University Health Plan
- Az Public Health
- Association Mayo Clinic Family Medicine
- Maricopa Integrated Health System
 - Ob/Gyn MFM

 - Family Medicine Ambulatory
 - Social Work
- Southwest Human Development
- St Luke's Health Initiatives
- AHCCCS



